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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,077	07/08/2003	Steven C. Johnson	10017415-1	7949
7590 07/27/2004			EXAMINER	
HEWLETT-PACKARD COMPANY Intellectual Property Administration P.O. Box 272400 Fort Collins, CO 80527-2400			NGUYEN, DANG T	
			ART UNIT	PAPER NUMBER
			2824	

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/615,077

Applicant(s)

JOHNSON ET AL.

Examiner

Dang T Nguyen

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Search history</u> .                   |

### **DETAILED ACTION**

1. This action is responsive to the following communications: the Application filed on July 08, 2003.
2. Claims 1 – 35 are pending in this case. Claims 1, 5, 10, 30, and 32-35 are independent claims.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-3, 5-6, 9-15, 18, 21, 24, 30, 32, and 34 are rejected under 35**

**U.S.C. 102(b) as being anticipated by Widdershoven, U.S. Patent No. 6,313,502 B1  
– filed Nov. 30, 1999.**

**Regarding independent claim 1**, Widdershoven discloses a system comprising: a high-density non-volatile fast memory (Col. 1 line 10); and an ultraviolet (UV) light window adapted to expose the high-density non-volatile fast memory to UV light (Col. 1 lines 10-12 and 35-37).

**Regarding dependent claim 2**, Widdershoven discloses wherein the high-density non-volatile fast memory comprises a modified flash memory having no erasing circuitry (Col. 1 line 10, [Widdershoven teaches using UV light to erase memory cells, therefore, no erasing circuitry in the flash memory]).

**Regarding dependent claim 3**, Fig. 2 of Widdershoven discloses wherein the high-density non-volatile fast memory comprises a two-terminal drain-gate-connected modified flash cell having no erasing circuitry (Col. 1 lines 10-16).

**Regarding independent claim 5**, Widdershoven discloses a device comprising: two-terminal drain-gate-connected modified flash cells having no erasing circuitry (Col. 1 lines 10-16); and an ultraviolet (UV) light window adapted to expose the two-terminal drain-gate-connected modified flash cells to UV light (Col. 1 lines 10-12 and 35-37).

**Regarding dependent claim 6**, Figs. 1 and 2 of Widdershoven discloses wherein the two-terminal drain-gate-connected modified flash cells are configured as a two-dimensional planar matrix of cells (Col. 3 lines 54-56 and Col. 4 lines 5-7).

**Regarding dependent claim 9**, Fig. 2 of Widdershoven discloses wherein the two-terminal drain-gate-connected modified flash cells are configured as three-dimensional layers (Col. 1 lines 10-16).

**Regarding independent claim 10**, Widdershoven discloses a system comprising: modified flash cells having no erasing circuitry (Col. 1 line 10, [Widdershoven teaches using UV light to erase memory cells, therefore, no erasing circuitry in the flash memory]); and an ultraviolet (UV) light window adapted to expose the modified flash cells to UV light (Col. 1 lines 10-12 and 35-37).

**Regarding dependent claim 11**, Fig. 2 of Widdershoven discloses wherein the UV light window [15] is located above a control gate [10] of the modified flash cells.

**Regarding dependent claim 12**, Fig. 2 of Widdershoven discloses wherein the UV light window [15] is located below a substrate of the modified flash cells.

**Regarding dependent claim 13**, Fig. 4 of Widdershoven discloses wherein the UV light window is interposed between control gates of the modified flash cells.

**Regarding dependent claim 14**, Widdershoven discloses wherein the UV light window is offset from control gates of the modified flash cells (Col. 4 lines 52-55).

**Regarding dependent claim 15**, Widdershoven discloses wherein the UV light window is adapted to diffuse UV light entering the UV light window (Col. 4 lines 45-49).

**Regarding dependent claim 18**, the claim incorporated substantially same subject matter as claim 6 above, and is rejected along the same rationale.

**Regarding dependent claim 21**, the claim incorporated substantially same subject matter as claim 9 above, and is rejected along the same rationale.

**Regarding dependent claim 24**, Widdershoven further comprising an electronic device adapted to house the modified flash cells, the electronic device having an opening to receive the UV light window (Col. 1 lines 6-16).

**Regarding independent claim 30**, Widdershoven discloses a method comprising: exposing a high-density non-volatile fast memory to ultraviolet (UV) light; and erasing the high-density non-volatile fast memory using the UV light (Col. 1 lines 9-12 and 35-37).

**Regarding independent claim 32**, the claim incorporated substantially same subject matter as claim 30 above, and is rejected along the same rationale.

**Regarding independent claim 34**, the claim incorporated substantially same subject matter as claim 30 above, and is rejected along the same rationale.

**Claims 33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Kazami et al., U.S. Patent No. 5,159,433 – filed Apr. 18, 1990.**

**Regarding independent claims 33 and 35**, Kazami et al. discloses a method and system comprising: means for installing ultraviolet (UV) windows onto portable electronic devices having non-volatile memory (Col. 1 lines 14-18); and passing UV light through the UV windows (Col. 1 lines 14-17); and means for erasing the non-volatile memory by exposing the non-volatile memory to UV light through the UV light windows (Col. 1 lines 16-18).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Widdershoven, U.S. patent No. 6, 313,502 B1 – filed Nov. 30, 1999 in view of Maayan et al., Pub. No. US 2004/0008541 A1 – Pub. Date: Jan. 15, 2004.**

**Regarding dependent claim 4**, Widdershoven as applied to claim 3 above disclosed every aspect of applicant's claimed invention except for the two-terminal drain-gate-connected modified flash cell is a diode-connected nitrided read-only memory (NROM) cell.

Fig. 2B of Maayan discloses a flash cell is a NROM cell (page 4, paragraph [0048]).

Widdershoven and Maayan et al. are common subject matter for non-volatile memory. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporated Maayan's NROM cell into Widdershoven's drain-gate, since Maayan taught the benefit by pointing out that the NROM cell particularly suitable for multiple use chips (Page 3, paragraph [0032] lines 7-8).

**Claims 7-8, 16-17, 19-20, and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widdershoven, U.S. patent No. 6, 313,502 B1 – filed Nov. 30, 1999 in view of Wu, Pub. No. US 2003/0146465 A1 – Pub. Date: Aug. 7, 2003.**

**Regarding dependent claims 7 and 8,** Widdershoven as applied to claim 6 above, disclosed every aspect of applicant's claimed invention except for the two-dimensional planar matrix of cells is a NAND and a NOR configuration.

Wu discloses a gate structure having a configuration of NAND and NOR type (Page 1, paragraph [0004]).

Widdershoven and Wu are common subject matter for flash memory. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporated Wu's NAND and NOR type into Widdershoven's matrix for the purpose of using NAND type for having very high parasitic capacitances between the select-gate (word) line and control-gate line, and using NOR type for obtaining high speed programming (page 1 paragraph [0004]).

**Regarding dependent claims 16 and 17**, the claims incorporated substantially same subject matter as claims 7 and 8 above, and are rejected along the same rationale.

**Regarding dependent claims 19 and 20**, the claims incorporated substantially same subject matter as claims 7 and 8 above, and are rejected along the same rationale.

**Regarding dependent claims 22 and 23**, the claims incorporated substantially same subject matter as claims 7 and 8 above, and are rejected along the same rationale.

**Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widdershoven, U.S. patent No. 6, 313,502 B1 – filed Nov. 30, 1999 in view of Lin, Pub. No. US 2003/0064564 A1 – Pub. Date: Apr. 3, 2003.**

**Regarding dependent claims 25-29**, Widdershoven as applied to claim 24 above, disclosed every aspect of applicant's claimed invention except for wherein the electronic device is a portable electronic device, a cellular telephone, a personal digital assistant (PDA), an MP3 player, and a lap-top computer.

Lin discloses the portable electronic device is a portable electronic device, a cellular telephone, a personal digital assistant (PDA), an MP3 player, and a lap-top computer (Page 1, paragraph [0004] lines 17-23).

Widdershoven and Lin are common subject matter for flash memory cell. Therefore, it would have been obvious to one having ordinary skill in the art at the time



Art Unit: 2824

the invention was made to incorporated Lin's portable electronic device into Widdershoven's flash cell, since Lin taught the benefit by pointing out that portability of these electrical consumer product is strongly prioritized by consumers, the products' size must be minimal (Page 1, paragraph [0004] lines 21-23).

**Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Widdershoven, U.S. patent No. 6, 313,502 B1 – filed Nov. 30, 1999 in view of Kozicki et al., U.S. patent No. 6,084,796 – filed: Jan. 12, 1999.**

**Regarding dependent claim 31**, Widdershoven as applied to claim 30 above, disclosed every aspect of applicant's claimed invention except for passing light through a UV light window.

Fig. 10B of Kozicki et al. discloses the UV light [110] enters sensor [100] through window [109] (Col. 17 lines 33-35).

Kozicki and Widdershoven are common subject matter for non-volatile memory. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporated Kozicki's UV light window into Widdershoven's UV light for the purpose of enhancing the ionization of the metal during growth or dissolution of dendrite and hence the time to grow or dissolve dendrite is reduced (Col. 17 lines 40-43).

***Prior art***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sung et al.	Patent No. US 6,538,277	Date of Patent: Mar. 25, 2003
Ratnam	Patent No. US 6,236,608	Date of Patent: May 22, 2001
Arase et al.	Patent No. 5,814,855	Date of Patent: Sep. 29, 1998

***Contact Information***

6. Any inquiry concerning this communication from the examiner should be directed to Dang Nguyen, who can be reached by telephone at (703) 305-1673. Normal contact times are M-F, 8:00 AM - 4:30 PM.


Upon an unsuccessful attempt to contact the examiner, the examiner's supervisor, Richard Elms, may be reached at (571) 272-1869.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, whose telephone number is (703) 305-3900. The faxed phone number for organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the Status of an application may be obtained from the patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dang Nguyen 7/20/2004



**RICHARD ELMS**  
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